

MODEL

TM14-17RZ/RPZ

TM20-17RA/RPA

COLOR MONITOR

FARBMONITOR

OPERATION MANUAL
BEDIENUNGSANLEITUNG

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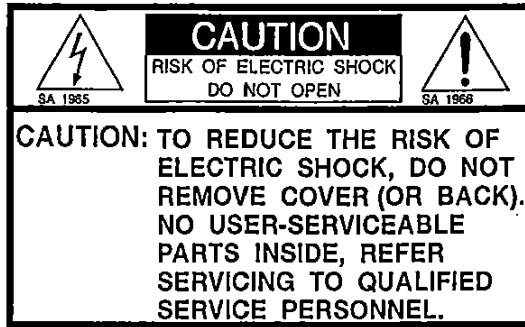
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The lightning flash with arrowhead within a triangle is intended to tell the user that parts inside the product are a risk of electric shock to persons.



The exclamation point within a triangle is intended to tell the user that important operating and servicing instructions are in the papers with the equipment.

WARNING : FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS (REFER TO SERVICE LITERATURE).

WARNING : TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR WATER.

INFORMATION TO USER FOR FCC

WARNING:

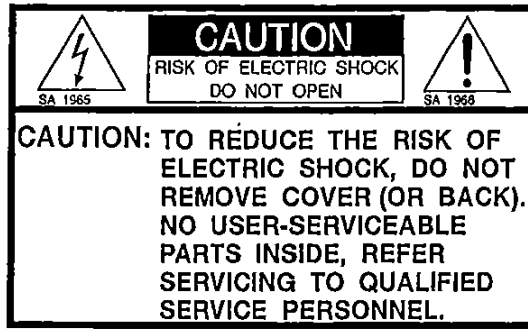
ANY CHANGES OR MODIFICATIONS NOT EXPRESSLY APPROVED BY THE PART RESPONSIBLE FOR COMPLIANCE COULD VOID THE USERS AUTHORITY TO OPERATE THE EQUIPMENT.

CAUTION:

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.

Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.



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DECLARATION of CONFORMITY :

The "CE" mark means the products as mentioned below will meet the intent of the following Directives and Standards.

Inrush current according to EN55103-1 Annex B as follows.

TM14-17RPZ : 44.5A

TM20-17RPA : 46.4A

Directives : 93/68/EEC, 89/336/EEC, 92/31EEC for
EMC (electromagnetic compatibility)
73/23/EEC for Low voltage (Safety)

Standards : EN55103-1-E4, EN55103-2-E4
EN60555-2, EN60950

High-quality shielded cables must be used to compliance to above listed standards.

WARNING : TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR WATER.

IMPORTANT SAFETY INSTRUCTION

1. General

- ① Read all of these instructions.
- ② Save these instructions for later use.
- ③ Follow all warnings and instructions marked on the television equipment.
- ④ Never push objects of any kind into this television monitor through cabinet slots as they may touch dangerous voltage points or short out parts that could result in a fire or electric shock. Never spill liquid of any kind on the television monitor.
- ⑤ Do not attempt to service this television monitor yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.
- ⑥ Do not use attachments not recommended by the television equipment manufacturer as they may result in the risk of fire, electric shock, or injury to persons.
- ⑦ This television monitor has been preadjusted to meet the respective broadcasting standard signals. So, it cannot be used with the signals of different broadcasting standards.
- ⑧ When keeping or transporting the unit for a long time, pack it in the supplied carton or equivalent.
- ⑨ This monitor is heavy.
When taking out of or putting it into a carton box, or setting, do not move or carry it by a person. You may drop it on your foot, or hurt your waist.



2. Power supply

- ① This television equipment should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supplied to your home, consult your television dealer or local power company.

- ② This television equipment is provided with a three-wire grounding type plug having a third (grounding) pin. This plug will only fit into a grounding-type power outlet. This is a safety feature. If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet.
Do not defeat the safety purpose of the grounding-type plug.
- ③ When connecting and disconnecting the power cable, be sure to hold the plug.
- ④ Do not allow anything to rest on the power cord. Do not locate this television equipment where the cord will be abused by persons walking on it.
- ⑤ For added protection for this television equipment during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet. This will prevent damage to the equipment due to lightning and power-line surges.
- ⑥ Do not overload wall outlets and extension cords as this can result in fire or electric shock.

3. Usage and location

- ① Do not use this television equipment near water — for example, near a bath tub, wash-bowl, kitchen sink, or laundry tub, in a wet basement, or near a swimming pool, or the like.
- ② Do not place this television equipment on an unstable cart, stand, or table. The television equipment may fall, causing serious injury to a child or adult, and serious damage to the equipment. Use only with a cart or stand recommended by the manufacturer, or sold with the television equipment. Wall or shelf mounting should follow the manufacturer's instructions, and should use a mounting kit approved by the manufacturer.
Television equipment and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the equipment and cart combination to overturn.



IMPORTANT SAFETY INSTRUCTION

- ③ Slots and openings in the cabinet and the back or bottom are provided for ventilation, and to ensure reliable operation of the monitor and to protect it from overheating, these openings must not be blocked or covered. The openings should never be blocked by placing the television equipment on a bed, sofa, rug, or other similar surface. (This television equipment should never be placed near or over a radiator or heat register.)

This television equipment monitor should not be placed in a built-in installation such as a bookcase unless proper ventilation is provided.

- ④ Avoid operating or placing (keeping) in hot (+40°C or over) and cold (less than 0°C), excessively vibratory, or dusty place. And avoid operating or placing (keeping) in the places exposed to the direct sunlight. Otherwise the cabinet may deform or the phosphor of the CRT surface may deteriorate.
- ⑤ If an image of extremely high brightness is displayed on the screen for a long time, the CRT may cause burning.

4. Cleaning

- ① Unplug this television equipment from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.
- ② Do not use thinner or benzine for cleaning. Otherwise, the cabinet may deform or the paint may peel away.

5. Repair

- ① Unplug this television monitor from the wall outlet and refer servicing to qualified service personnel under the following conditions:
 - a. When the power cord or plug is damaged or frayed.
 - b. If liquid has been spilled into the television monitor.
 - c. If the television monitor has been exposed to rain or water.
 - d. If the television monitor does not operate normally by following the operating instructions.
Adjust only those controls that are covered by the operating instructions as improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the television monitor to normal operation.
 - e. If the television monitor has been dropped or the cabinet has been damaged.
 - f. When the monitor exhibits a distinct change in performance — this indicates a need for service.
- ② When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer that have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock, or injury to persons.
- ③ Upon completion of any service or repairs to this monitor, ask the service technician to perform routine safety checks to determine that the television is in safe operating condition.
- ④ For repair service, contact Ikegami's authorized sales representative or Ikegami service window directly.

PRECAUTIONS FOR OPERATION

- (1) Never let this unit fall nor give it a strong shock.
Otherwise, it will be damaged.
 - (2) Do not detach the cabinet unless otherwise necessary.
High-voltage parts are contained in the cabinet and they are very dangerous if you touch them. Only the qualified service engineers are allowed to adjust the inside of the cabinet.
 - (3) This color monitor has been adjusted to the signals conforming to each broadcasting standard.
So, it cannot be used for signals of different broadcasting standards.
Be sure to operate the color monitor within the voltage range marked on its back.
 - (4) If the cabinet or screen is stained, wipe with soft cloth. At this time, avoid using benzine or thinner.
Otherwise, the paint may peel away.
 - (5) Note that, if video signals with high luminance are monitored on the CRT for long, the CRT may suffer from sticking.
 - (6) Avoid using and storing this unit in the following places:
 - Hot (+40°C or more) or cold (0°C or less) places.
Especially in a place where this unit is exposed to the direct rays of the sun, the cabinet may deform and the fluorescent screen of the CRT may be deteriorated.
 - Humid and dusty places.
 - Places where there is much vibration.
 - Places where strong magnetism is generated.
 - Places exposed to rain or water.
 - When storing this unit for long or transporting it, pack it up in the supplied carton or equivalent beforehand.
- Even if no picture can be monitored by performing daily adjustment or something seems to be wrong with this unit, do not dismantle this unit by yourself. In such a case, contact the service department of Ikegami.
 - Should this unit fail within one year after your acceptance, it will be repaired free of charge unless such a trouble is not caused by operator's mishandling or misuse.
However, the CRT and fuses are not covered by the warranty.
 - The specifications and appearance of this unit may be changed for further improvement without prior notice.

PRECAUTIONS FOR HANDLING OF REMOTE CONNECTOR

Follow the following precaution in order to obtain the prescribed performance.

Precaution

Use the shielded cable for the remote connector and attach the core (supplied or equivalent) for prevention of electromagnetic waves emission to it.

1. GENERAL

This equipment is a color monitor with high picture quality and high performance which enables a wide range of use for broadcasting stations as well as for productions, or the like.

2. FEATURES

- (1) **CRT**
In-Line Self Converging Electron Gun assures convergence stability.
Black Matrix surrounding CRT face assures high contrast under bright ambient lighting.
- (2) **NTSC/PAL automatically detecting circuit**
Color decoder LSI automatically detects the burst of input signal and selects the decoding format and the deflection system.
- (3) **BFS(Beam Feedback System)**
The beam feedback system, which detects the CRT cathode current, provides images with stable black level for a long time.
- (4) **CRT protection circuit**
It is provided with a protection circuit against suspension of horizontal and vertical deflection and the high voltage and therefore prevents damages and burning.
- (5) **Sufficient input systems**
There are 4 input systems, 2 composite video input, 1 Y/C input and 1 AUX input(RGB/YPBPR).
In addition, there is optional digital input.(D1, D2 or D3)
- (6) **Horizontal AFC time constant selection**
The time constant of the horizontal deflection AFC can be selected in either 0.5msec or 2msec.
- (7) **Screen amplitude selection**
Selecting the under scan permits observation of picture corners.
- (8) **4 : 3 / 16 : 9 selection**
An aspect ratio of picture is switched over from 4:3 to 16:9.
- (9) **Pulses cross**
As it possesses the function of the pulse cross, the observation of the synchronized signal becomes simple
- (10) **19-inch rack mount**
This unit is rack mountable. It is designed for the smallest possible height for EIA standard rack units with a height of either 10-1/2 inches (TM14-17RZ/RPZ) or 15-3/4 inches (TM20-17RA/RPA).
- (11) **Setting CHROMA level exclusively for COMPONENT input**
The CHROMA level for COMPONENT input can independently be set without affecting CHROMA level set by other input since a setting value of CHROMA level in the PRESET state is automatically switched to one set by YPBPR CHROMA on the front side when the ANALOG COMPONENT input(YPBPR) is selected.
Therefore, a CHROMA level can be set, maintaining compatibility with various VTR COMPONENT standards(BETA, M II, N10 and SMPTE, etc.).
* The YPBPR CHROMA level has been factory-set to the N10 and SMPTE standards(Y : 0.7Vp-p, PBPR : 0.525Vp-p).

3. SPECIFICATIONS

3-1 General

- 1) **Power supply voltage**
 - TM14-17RZ, TM20-17RA (JPN, USA)
AC100V to 120V $\pm 10\%$ 50/60Hz
 - TM14-17RPZ, TM20-17RPA (EUR)
AC200V to 240V $\pm 10\%$ 50/60Hz
- 2) **Power consumption**
 - TM14-17RZ/ RPZ Approx. 75W
 - TM20-17RA/ RPA Approx. 60W
- 3) **Ambient temperature and humidity**
 - 0°C to 40°C
 - Less than 90%(non-condensing)
- 4) **Dimensions and weight**
 - TM14-17RZ/RPZ
450(W)×265(H)×515(D) · 19kg
 - TM20-17RA/RPA
450(W)×399(H)×515(D) · 28kg
- 5) **Accessories**
 - AC cable, remote connector, operation manual

3-2 Rating and performance**1) Input signal**

Composite input 2systems BNC
 High impedance bridge connection /
 75Ω termination
 Y/C input 1system 4pin
 75Ω termination
 Component input 1system BNC
 High impedance bridge connection /
 75Ω termination
 (RGB/YPBPR: Switching on rear)
 Synchronous input 1system BNC
 High impedance bridge connection /
 75Ω termination

2) Input signal level

Composite signal
 VS 1.0Vp-p and
 V 0.7Vp-p positive polarity
 Y/C signal
 Y VS 1.0Vp-p and
 V 0.7Vp-p positive polarity
 C 0.286Vp-p burst level
 Component signal
 RGB VS 1.0Vp-p and
 0.7Vp-p positive polarity
 YPBPR (N10, SMPTE)
 Y V: 0.7Vp-p, S: 0.3Vp-p
 Set-up 0% positive polarity
 PB, PR 0.525Vp-p
 Synchronous signal
 4.0Vp-p ± 2Vp-p negative polarity

3) Resolution

TM14-17RZ/RPZ : 650 lines min.
 (at the center)
 TM20-17RA/RPA : 600 lines min.
 (at the center)

4) CRT

TM14-17RZ/RPZ
 In-line electric gun slot type shadow mask
 fluorescent material.
 mask pitch: 0.28mm
 TM20-17RA/RPA
 In-line electric gun dot type shadow mask
 fluorescent material.
 dot pitch: 0.43mm

5) Return loss

40dB or more (100kHz to 4.2MHz)

6) X-ray radiation

Below 0.1mR/H (at all points 50mm away
 from the outside frame of monitor)

3-3 Video signal system**1) Frequency characteristic**

From video input terminal to terminal
 amplifier output of R, G, and B signals:
 50Hz to 7MHz +1/-3dB
 (Reference frequency: 100kHz)
 Aperture correction: 0, Trap: OFF

2) Waveform distortion

Up to each final stage amplifier output for
 R, G and B with rising edge of 0.05μ sec
 rectangular wave added from the video
 input terminal.
 Over-shoot: 250kHz 10%max.
 Sag: 50Hz 5%max.

3) Sub-carrier attenuation

-24dB max. (Aperture correction: 0)

4) Linearity

From video input terminal to terminal
 amplifier output of R, G, and B signals:
 DG 5%max.

5) Aperture correction

When the trap is on, symmetrical over-
 shoot waveforms of 2T pulse are produced.

3-4 Color signal system**1) Color signal demodulating method**

90° color difference method

2) Chroma signal characteristics

When video sweep signal of VS 1.0Vp-p
 added to video input signal is measured at
 chroma output test terminal:
 NTSC: 3.58MHz ± 0.5MHz +1/-3dB
 PAL: 4.43MHz ± 0.5MHz +1/-3dB

3) Phase difference of demodulation axes

Relative phase of R-Y and B-Y axes:
 90° ± 2°

4) Subcarrier frequency sync range

NTSC: 3.579545MHz ± 200Hz
 PAL: 4.43361875MHz ± 200Hz

5) Delay compensation

Delay time compensation error from
 luminance and R-Y/B-Y channel is less
 than 0.1μ sec.

3-5 Synchronization system**1) Synchronization stability**

Operation is stable with the input signal in the following range.

- Internal synchronization

-6dB is kept at sync component of video input as rated value, and video input change when the video component is suddenly varied over 0 to 0.85Vp-p range.

±6dB (at rated value)

- External synchronization

Negative voltage applied to external sync input terminal

1 to 8Vp-p

2) Vertical synchronization

① Free run frequency of oscillator

Variable over a 45Hz to 65Hz range by V.HOLD.

② Free running frequency stability

Within ±2Hz in the above condition

③ Interlace ratio

Less than 45 : 55 when vertical scanning is synchronized.

3) Horizontal synchronization

① Free run frequency of oscillator

14.75kHz to 16.75kHz

② Capture range of oscillator

Capture range: ±300Hz

Hold range: ±1kHz

③ AFC time constant

Slow: 2msec

Fast: 0.5msec

3-6 Deflection system**1) Scanning frequency**

NTSC Horizontal 15.734kHz

Vertical 59.94Hz

PAL Horizontal 15.625kHz

Vertical 50Hz

2) Picture size

Normal scan (4 : 3)

Over-scan of 1% to the effective CRT area at an aspect ratio of 4 : 3.

Under scan (4 : 3/16 : 9)

The limit of effective picture area contacts the corners of escutcheon at an aspect ratio of 4 : 3 or 16 : 9.

3) Geometrical distortion

Linearity and geometrical distortion:
Within 2% of picture height

4) Convergence

In a circle equivalent to

80% of picture height: 0.3mm

Any point other than above:

Within 0.4mm

5) Retrace time

Horizontal: Below 10 μ sec

Vertical: Below 1msec

3-7 High voltage portion

High voltage output: 24kV ± 1kV

High voltage fluctuation:

±5% within the range of 0 to 450 μ A
on the basis of 150 μ A.

3-8 Noise

Synchronous noise: -40dB

Hum noise: -50dB

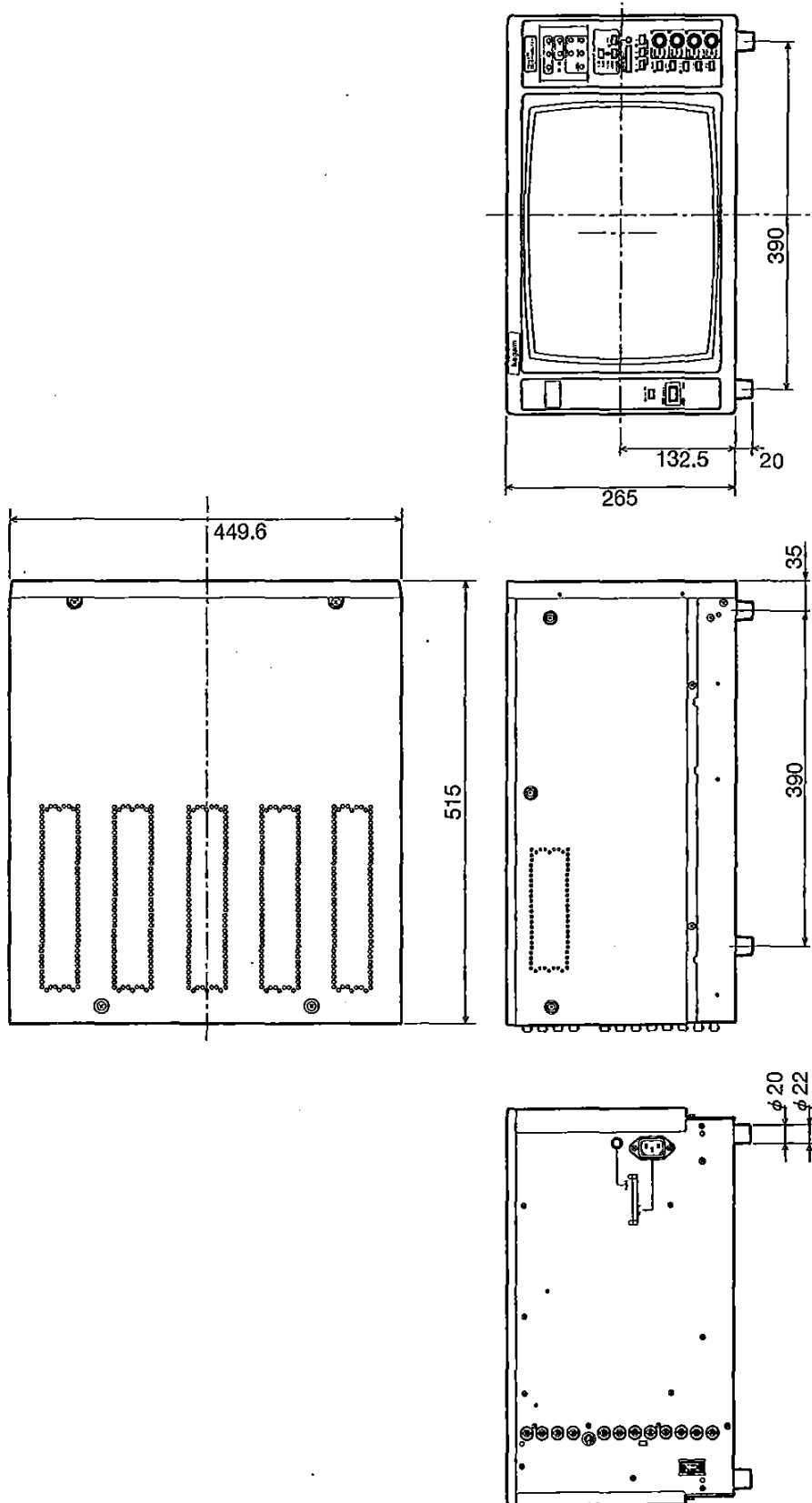
Others: -50dB

3-9 External view

TM14-17RZ/RPZ: G3-J90127

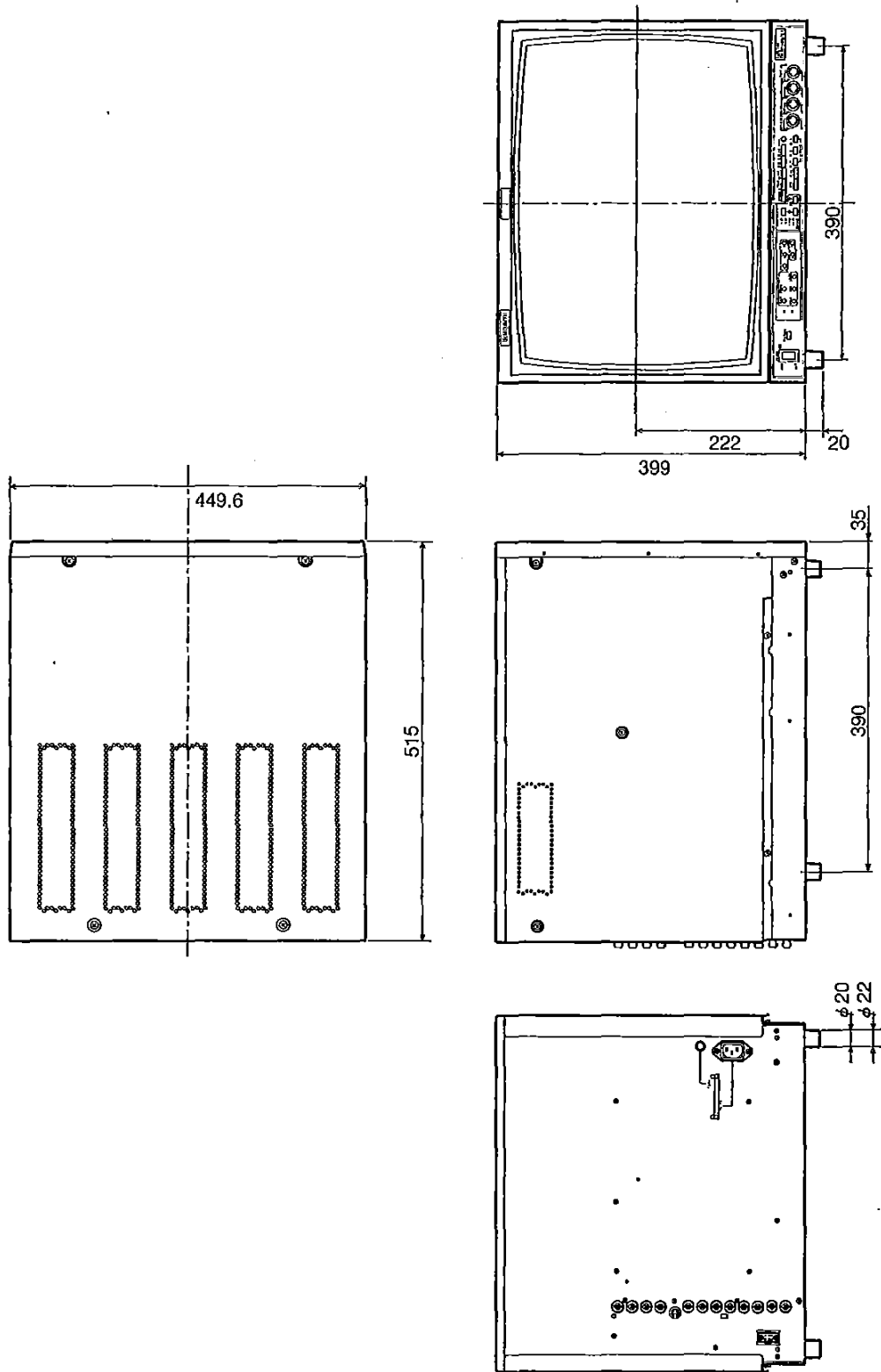
TM20-17RA/RPA: K3-950130-4

3. SPECIFICATIONS



TM14-17RZ/RPZ
EXTERNAL VIEW
G3-J90127

3. SPECIFICATIONS



TM20-17RA/RPA
EXTERNAL VIEW
K3-950130-4

4. CONNECTION

4-1 External connection

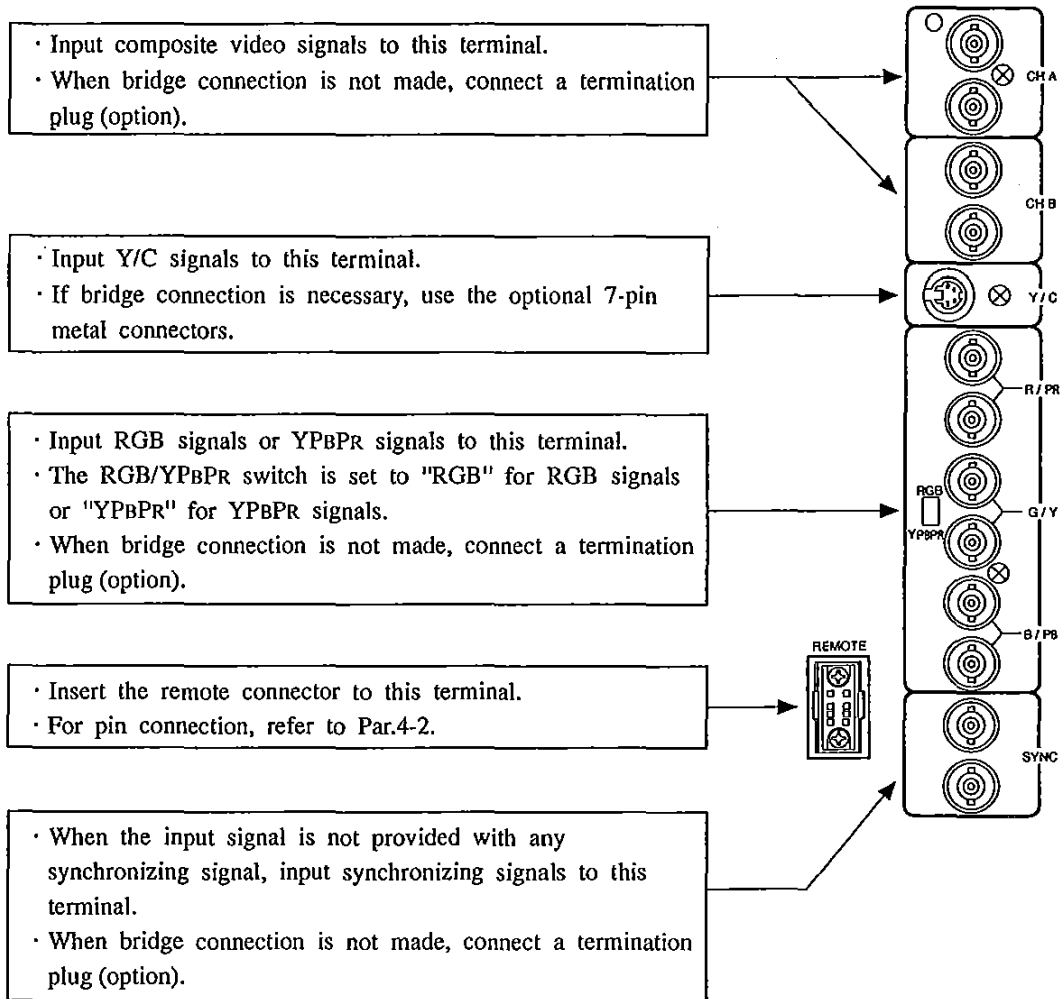


Fig. 4-1 External connection

4-2 Connection of parallel remote connector

(1) When actuating the following functions on the REMOTE side, set the switches on the monitor as follows.

- ① **INPUT SELECT** switch ⇒ VIDEO CH A
- ② **MONO** switch ⇒ OFF
- ③ **16:9** switch ⇒ OFF

(2) When remote-controlling, connect the supplied REMOTE connector as shown right figure.

* **SYNC INT/EXT** switch is to be automatically switched to the state retained in memory channel by channel in advance.

NOTE

- 1) When actuating the **MONO** switch or the **INPUT SELECT** switch on the monitor with the REMOTE connector connected, set the concerned switches on the REMOTE side to OPEN state.
- 2) You can remotely operate the **16:9** switch by using the following monitor (serial number).
 - TM14-17R : Since AA 1897
 - TM20-17RA : Since Z 1789
- 3) While you operate the **16:9** switch remotely, the LED of the **16:9** switch on the monitor is not lit.

Remote connector

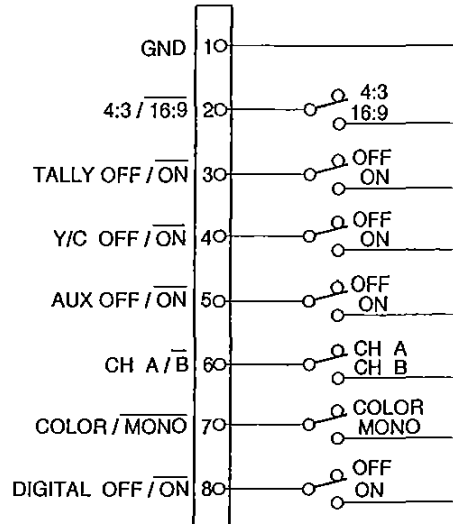
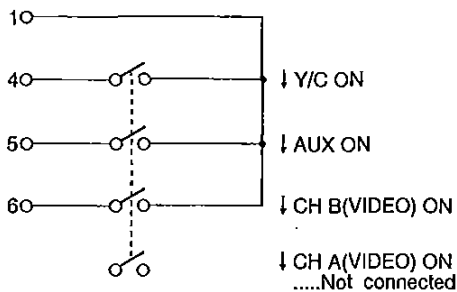


Fig. 4-2 Pin connection of remote connector

(3) Remote-operating the INPUT SELECT can smoothly be done by using four interlocking or five interlocking switches as shown below.

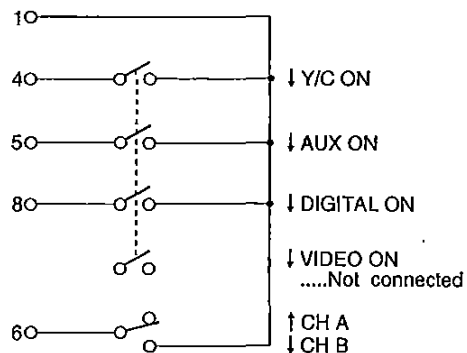
① Interlock-switching Y/C, AUX, CH A/B

(Remote connector)



② Interlock-switching DIGITAL A/B in addition to ①

(Remote connector)



5. ROUTINE ADJUSTMENT

The prescribed performance can be obtained by adjusting only the following switches and controls under the normal operating conditions.

5-1 Names and functions of switches and controls on the Front panel

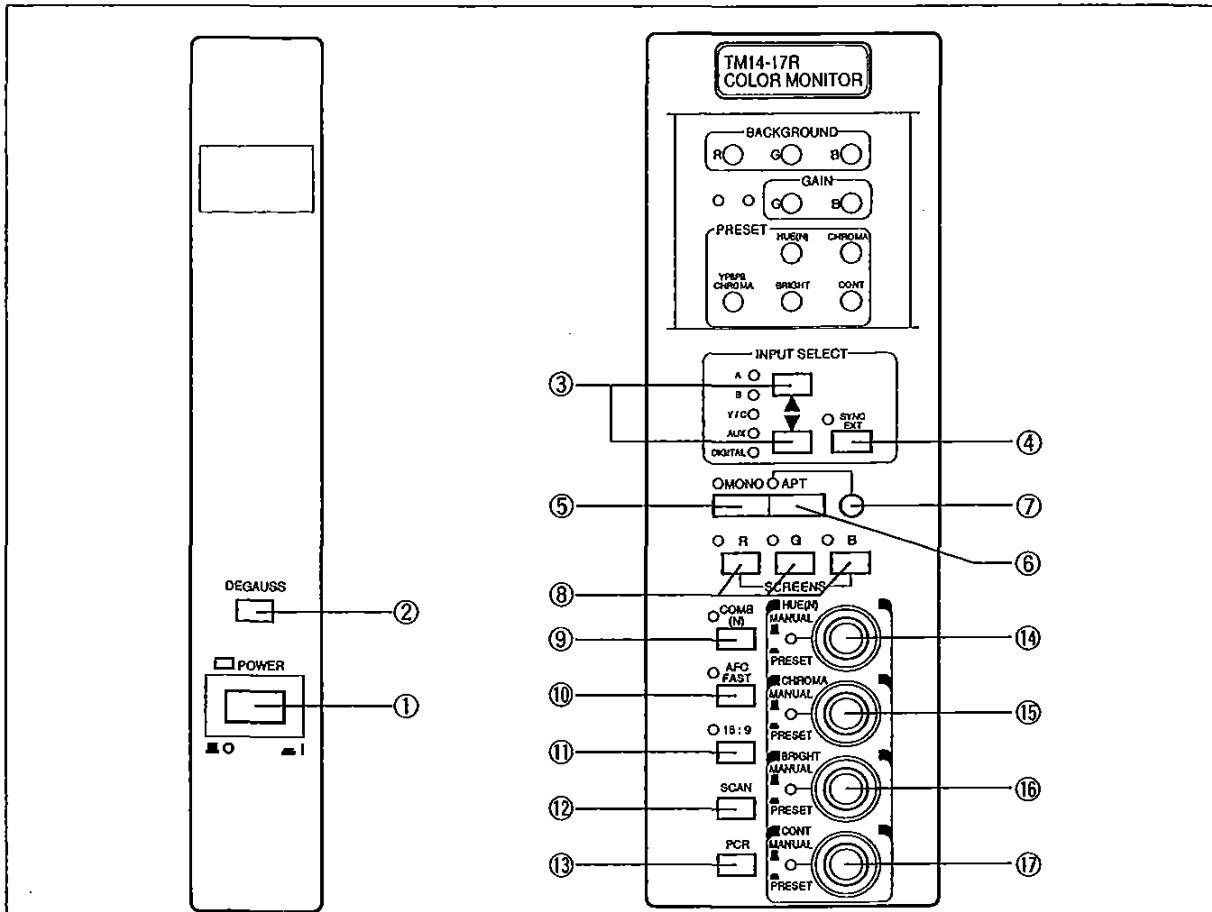


Fig.5-1 TM14-17RZ/RPZ Front panel

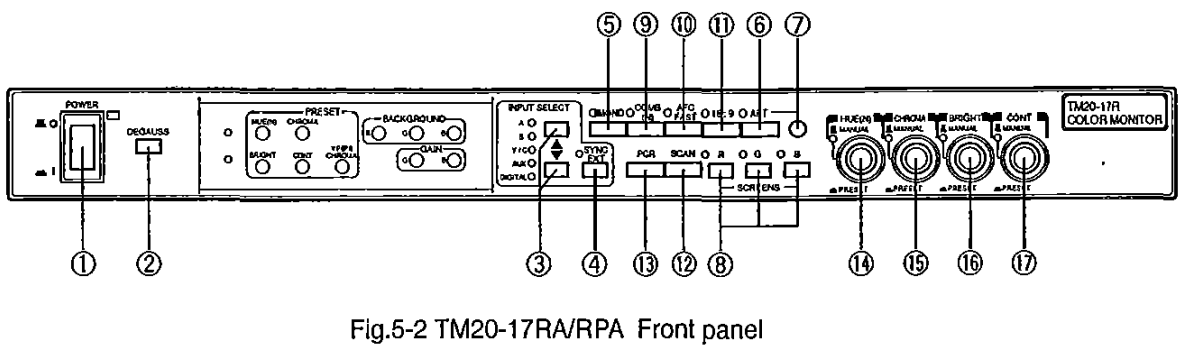


Fig.5-2 TM20-17RA/RPA Front panel

① **POWER** switch

Pressing this switch will turn on the power supply to the monitor and light up the LED.

② **DEGAUSS** switch


When the power supply is turned on and the monitor is turned on, the magnetized shadow

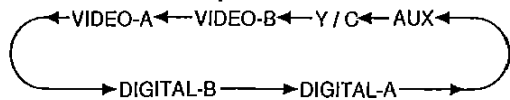
mask is automatically demagnetized.

It can also be demagnetized by just pressing this switch once.

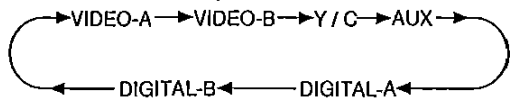
If this switch is pressed several times successively, normal demagnetizing will not be accomplished. So, press this switch 10 to 15 minutes after it is pressed once.

③ **INPUT SELECT** switches

a) When  is pressed :



b) When  is pressed :



- AUX is for RGB or YPbPr input. RGB/YPbPr selection is performed with the **RGB/YPbPr** switch on the rear.
- The optional digital kit is needed for digital signal. When digital signal is selected, LEDs of not only "DIGITAL" but also "A" or "B" are lit.
- Refer to ④ **SYNC EXT** switch.

④ **SYNC EXT** switch

When using external synchronizing signals, set this switch to the EXT position. A function which stores the state (EXT or INT) of this switch is provided for each channel. Namely, once this switch is set for each channel, it is not necessary to set this switch each time the channel is changed. Notes that this switch does not operate as there is not function of external synchronization for digital.

⑤ **MONO** switch

To obtain monochrome pictures, set this switch to the MONO position.

⑥ **APT** switch

When correcting the aperture, turn on this switch. The aperture correction is adjustable with the **APT** control.

⑦ **APT** control

With the **APT** switch set to the ON position, this control adjusts the aperture correction.

⑧ **SCREENS** switches

These switches are used to turn on and off the beam of R, G and B screens. When any of these switches is turned on, only the beam of the switch which is on is turned on. When all the switches are turned on, all the LEDs go out and R, G and B screens are all turned on.

⑨ **COMB(N)** switch (NTSC only)

When this switch is turned on with the composite video signal selected, the COMB filter circuit is used for separating the luminance signal and chroma signal from each other. When it is off, the TRAP circuit is used.

⑩ **AFC FAST** switch

This switch is used to select the AFC time constant. When it is on (AFC FAST), the time constant is 0.5msec. When it is off (AFC SLOW), the time constant is 2msec. Select an appropriate time constant by referring to the description given below.

- FAST (0.5msec)
Select this time constant when the synchronizing signal of the simple VTR etc. is not stable.
- SLOW (2msec)
Select this time constant under normal operating conditions.

⑪ **16:9** switch

The picture of aspect ratio of 4:3 appears on the screen usually. When this switch is set to the ON position, the picture becomes wide (16:9).

⑫ **SCAN** switch

This switch is used to select the scan size. This function does not operate for aspect ratio of 16:9.

⑬ **PCR** switch

Synchronizing signals can be monitored by pressing this switch. This function does not operate for RGB input signal. When this switch is set to the PCR position, the picture becomes black-and-white as chroma circuit is turned off.

⑭ **HUE(N)** manual control (NTSC only)

This is a manual control which is united in one body with the MANUAL/PRESET selector switch. When it is pressed, the LED comes on and the knob protrudes. In this state, the hue can be changed if the VIDEO, Y/C or DIGITAL (D2 or D3) signal is selected.

⑮ **CHROMA** manual control

This is a manual control which is united in one body with the MANUAL/PRESET selector switch. When it is pressed, the LED comes on and the knob protrudes. In this state, the chroma can be changed.

⑯ **BRIGHT** manual control

This is a manual control which is united in one body with the MANUAL/PRESET selector switch. When it is pressed, the LED comes on and the knob protrudes. In this state, the brightness can be changed.

⑰ **CONT** manual control

This is a manual control which is united in one body with the MANUAL/PRESET selector switch. When it is pressed, the LED comes on and the knob protrudes. In this state, the contrast can be changed.

5-2 Names and functions of switches and controls in the Front preset panel

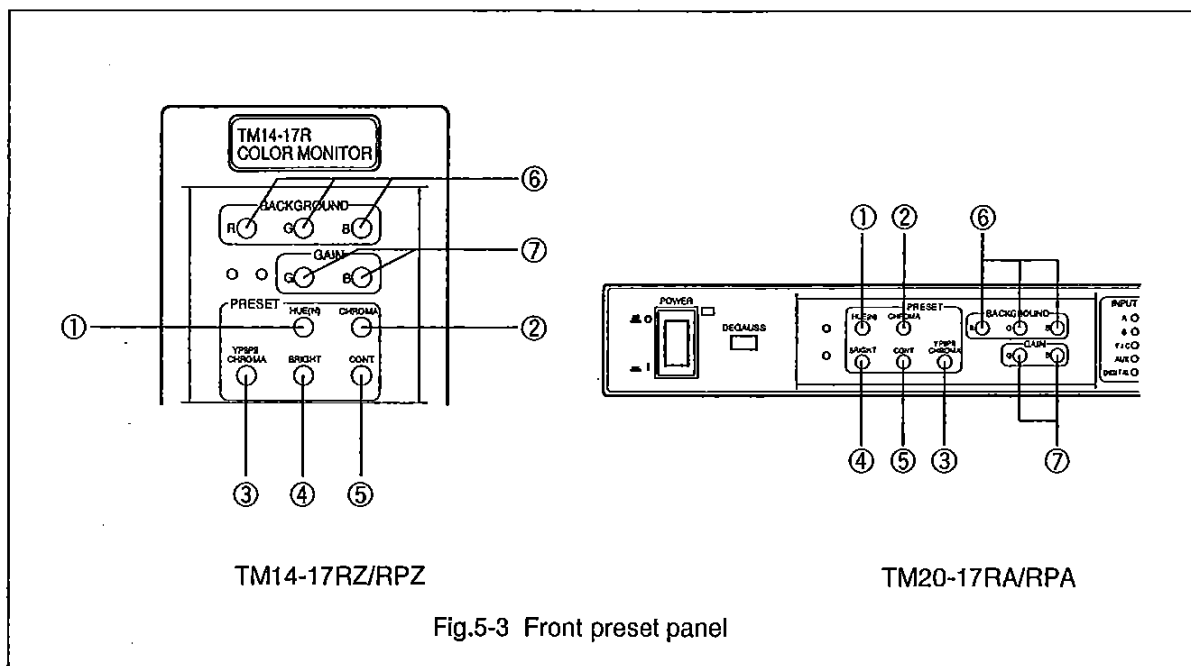


Fig.5-3 Front preset panel

① **HUE(N)** preset control (NTSC only)

When composite, Y/C or DIGITAL (D2 or D3) signal is selected, HUE is changeable at preset state.
Refer to 5.3(2).

② **CHROMA** preset control

When composite, Y/C or DIGITAL (D1, D2 or D3) signal is selected, CHROMA is changeable at preset state.
For YPBPR signal input, to agree with various standards, CHROMA level is automatically switched to the level which is set with the ③ **YPBPR CHROMA** preset control.
Refer to 5.3(2).

③ **YPBPR CHROMA** preset control

Only when YPBPR input selected, CHROMA level is automatically switched to the level which is set with this control. Therefore, CHROMA level for other input signal is not influenced and adjustment of CHROMA level can be independently performed.
CHROMA level can be set to the level based on each standard (M II, BETA, SMPTE or N10).

Note When shipping from factory, this control has been adjusted according to the SMPTE or N10 standard (Y: 0.7Vp-p, PB, PR: 0.525Vp-p).
If signal of other standard is input, refer to 5.3(2) and readjust.

④ **BRIGHT** preset control

Brightness is changeable at preset state. It is necessary to readjust black level with this control according to surround condition (ambient brightness).
Refer to 5.3(3).

⑤ **CONT** preset control

Contrast is changeable at preset state.

⑥ **BACKGROUND** controls

These controls are used to adjust the white balance at low light.
Refer to 5.3(1).

⑦ **GAIN** controls

These controls are used to adjust the white balance at high light.
Refer to 5.3(1).

5-3 How to adjust

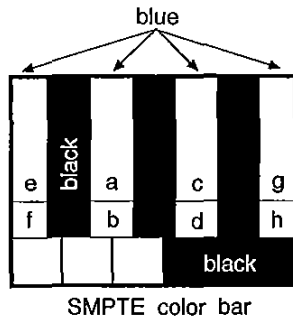
<For NTSC>

(1) White balance adjustment

- ① Input color bar signal and turn on the **MONO** switch to display black-and-white picture. Or, input stairs wave signal (black-and-white) such as gray scale signal.
- ② Adjust white balance with the **G.GAIN** and **B.GAIN** controls while paying attention to the bright part.
- ③ Adjust white balance (black balance) with the **R.BACKGROUND**, **G.BACKGROUND** and **B.BACKGROUND** controls while paying attention to the dark part.
- ④ Repeat steps ② and ③ until the bright and dark parts become the same color temperature.

(2) Color balance adjustment

- ① Input 75% color bar signal of the SMPTE.
- ② Turn on the **B.SCREEN** switch to display only blue signal.
- ③ As it is difficult to distinguish picture at high light, lower brightness as low as possible with the **BRIGHT** manual control.



- ④ Adjust the **HUE(N)** preset control so that a to d are all the same brightness. If the same brightness is not attained, adjust to the best condition and then make adjustment given in step ⑤.
- ⑤ Adjust the **CHROMA** preset control so that e to h are all the same brightness. If the same brightness is not attained, adjust to the best condition and then make adjustment given in step ④.
- ⑥ Repeat steps ④ and ⑤ until a to h are all the same brightness. And color balance adjustment is completed.

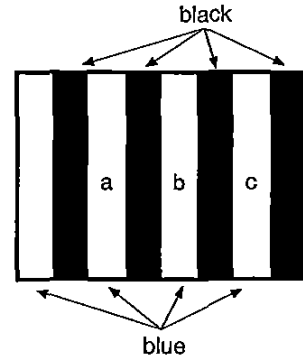
<For PAL>

(1) White balance adjustment

- ① Input color bar signal and turn on the **MONO** switch to display black-and-white picture. Or, input stairs wave signal (black-and-white) such as gray scale signal.
- ② Adjust white balance with the **G.GAIN** and **B.GAIN** controls while paying attention to the bright part.
- ③ Adjust white balance (black balance) with the **R.BACKGROUND**, **G.BACKGROUND** and **B.BACKGROUND** controls while paying attention to the dark part.
- ④ Repeat steps ② and ③ until the bright and dark parts become the same color temperature.

(2) Color balance adjustment

- ① Input the EBU color bar signal.
- ② Turn on the **B.SCREEN** switch to display only blue signal.
- ③ As it is difficult to distinguish picture at high light, lower brightness as low as possible with the **BRIGHT** manual control.

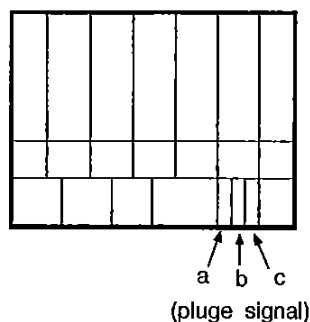


- ④ Adjust the **CHROMA** preset control so that a to c are all the same brightness.
- ⑤ Color balance adjustment is completed.

<For NTSC>

(3) Brightness adjustment

It is necessary to set the black level according to surrounding condition (ambient brightness).

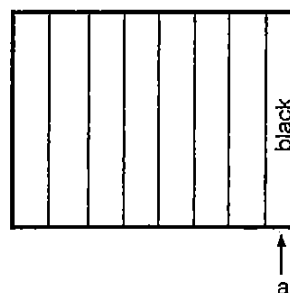


- ① Input 75% color bar signal of the SMPTE.
- ② Adjust the **BRIGHT** preset control so that brightness difference between **a** and **b** (black) is not distinguished and **c** is slightly visible to brighten.

<For PAL>

(3) Brightness adjustment

It is necessary to set the black level according to surrounding condition (ambient brightness).



- ① Input 75% color bar signal.
- ② Adjust the **BRIGHT** preset control to the position that **a** (black) starts to brighten.

6. OPTION

(1) Digital Input Kit

Digital signal (D1, D2 or D3) can be monitored by installing digital kit. (10bit)

D1 digital component input kit
: **DK171**

D2(D3) digital composite input kit
: **DK172N** (For NTSC)
: **DK172P** (For PAL)

Serial input: 2 systems

Serial output: 1 system (the channel selected on the monitor)

(2) Special Function Module: SF171

① Y/C input

The 7 pin metal connectors are provided and bridge connection can be made.

Also, the following output methods are possible.

7pin → 4pin

4pin → 7pin

② Serial remote input

BNC connectors are provided and bridge connection can be made.

(3) Serial Remote Controller: SRC-301

One controller can remotely control up to 15 kinds of 17 Series monitors by means of setting the remote number (monitor's identification number) for each monitor. (If combining 18/20/30 Series monitors, up to 99 kinds.)

Since the BNC coaxial cables are used for the serial remote control, you can control a lot of monitors by connecting the coaxial cables to monitors in series (loop-through).

You must install the optional Special Function Module (SF171) to your monitor to perform this function.

(4) Termination Plug: TP301

When bridge connection is not made, connect a termination plug (75Ω BNC).

(5) Rack Mount Adaptor

(Without slide rails)

· For TM14-17RZ/RPZ : **RS-1420**

· For TM20-17RA/RPA : **RS-2020**

(With slide rails)

· For TM14-17RZ/RPZ : **RS-1420S**

· For TM20-17RA/RPA : **RS-2020S**

Installing the rack mount adaptor permits this monitor to be mounted on 19-inch rack unit in conformity with the EIA standard.

**TM14-17RZ/RPZ
TM20-17RA/RPA
COLOR MONITOR / FARBMONITOR
OPERATION MANUAL /
BEDIENUNGSANLEITUNG**

6th Edition April 2003

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